

The particle model of matter

OxfordAQA International GCSE Physics 9203 particle model full package

1. The particle model of matter

The particle model of matter

Their energy, separation and motion explain the states of matter, heating and cooling, and why bridges need gaps

OxfordAQA's fourth topic builds the model and quantifies it: specific heat capacity, the (P) latent heats, evaporation, energy-transfer design and thermal expansion

2. Kinetic theory

Kinetic theory

Specific heat capacity c is the energy to raise 1 kg of a substance by 1 °C:

Heating 1.5 kg of water ($c = 4200$) by 40 °C: $E = 1.5 \times 4200 \times 40 = 252\,000 \text{ J}$

3. Energy transfers and particle motion

Energy transfers and particle motion

Conduction passes energy along a solid by particle vibration, helped by free electrons in metals; insulators lack both

Convection circulates fluid: particles gain energy, move apart, the fluid becomes less dense and rises, cooler fluid sinks

Check yourself

Check yourself

Work each checklist line against the worked examples named in the handout.

Redo any line you cannot close without the handout open.